Introduction

Presented on Behalf of the
Reflective Insulation Manufacturers Association International
About RIMA International

The Reflective Insulation Manufacturers Association International represents manufacturers and distributors of reflective insulation, radiant barriers and interior radiation control coating materials.

RIMA activities are guided by an active board of industry members who participate on national and local levels of building code organizations and governmental agencies.

Visit us at www.rimainternational.org
Overview

- Installation Examples
- Radiant Heat Fundamentals
- R-Values, U-Factors and Thermal Performance of Reflective Insulation
- Q&A
3 ways heat moves
  – Conduction
  – Convection
  – Radiation

Heat always goes to cold
Our concern today is with the radiant mode of heat transfer
Reflective Insulation and Radiant Barriers must always be installed in the presence of an air space.
Examples of Radiant Barrier Applications

Draped Method

Bottom of Roof Rafter - Method

Deck Applied Method
Metal Buildings – New

Various Widths
With or without Mass Insulation

Lightweight
Low E films on One or Both Sides
New Construction Roof

Thermal breaks are important in providing maximum thermal performance of a reflective material.
New Construction Roof

- Reflective insulation is draped over the purlins.

- Can be installed with thermal blocks.
Cross Sectional View for New Construction:

Reflective insulation installed over purlins and girts with thermal spacer blocks
New Construction Roof
With and Without Thermal Breaks

Cross Section with Thermal Breaks and Designed Reflective Air Space

Reflective Insulation Draped Over Thermal Blocks
Reflective Insulation Draped Under Thermal Blocks

Mass Insulation
Reflective Insulation
Can Function as a vapor retarder
Metal Buildings – Ceilings
New or Existing

Furred-out Across the Purlins

Installed with the Purlins

Back-filled with mass insulation

Over-lapped on Bottom

Thermal Break & Vapor Retarder

Reflective insulation material is over-lapped on the face of the purlin providing a Thermal Break.
Retrofit

- Easy to retrofit either walls or ceiling.

- Can be applied directly to the purlins or girts or applied with Furring strips.
Vapor Retarder

Sealing the Seams

Options:
- Staple together
- Silicone between tabs
- Double sided tape between tabs
- Foil tape over seam
Sealed seams & easily trimmed

Obstructions are easily over-come
Examples of Reflective Insulation Applications

R-Values Apply

Floor or Crawl Space

Masonry Walls

Metal Buildings

Commercial Ceiling – Metal Furring & Drywall (not pictured) Creates Enclosed Cavity

Enclosed Cavity
Wall Applications

- Masonry wall application
- Applied to furring strip on the inside of an exterior block wall
Wall Applications

- May be installed between the studs on exterior or interior walls
- Ideal for saunas, wine cellars and walls with high exposure to sun (in conjunction with mass)
Duct Applications

- Excellent duct insulation
- Can be applied with or without spacers depending on required R-Value
New Construction Walls

Thermal Breaks - Be Sure to Install Correctly
Post Frame - Wall and ceiling
New Construction Walls

- Reflective Insulation is applied to the outside of the girts and draped to provide an enclosed airspace.
Hybrid Strategies

- Enclose the space below an R-19 batt insulation to form a reflective air space.

- Install reflective insulation above the purlins to produce a reflective air space between the mass insulation and the roof panels.

- Both strategies increase the thermal resistance between the purlins and add a continuous layer of insulation.
New Construction Walls

Low Emittance Surface – Back-loaded with Mass
In Combination with Mass Insulation

Mass Insulation

Reflective Insulation

Roof / Ceiling

Walls
Roof Applications

Two Application Methods

- Between joists or with furring strips
- Ideal for cathedral ceilings and crawl spaces
Enclosed reflective air spaces can be used to form hybrid metal building insulation systems.

Continuous added R value can be achieved.

Hybrid systems provide a way to satisfy new thermal resistance requirements for metal buildings.